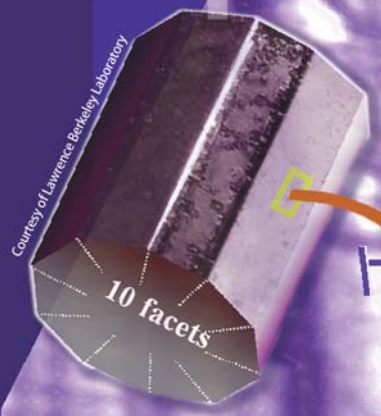
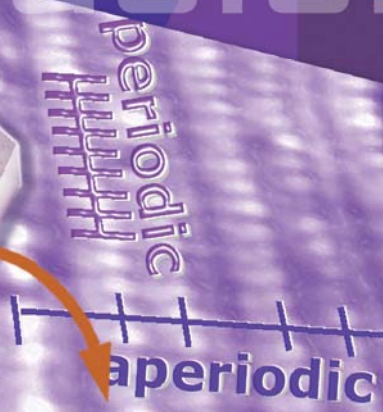
# quasicrystal periodicity

## Decagonal Al-Ni-Co Quasicrystal Surface




### Quasicrystal Periodicity

Quasicrystals are an eccentric deviation from a typical crystal structure. A normal crystal structure has its atoms arranged in a periodic crystal lattice of points that repeat themselves within a plane. In a quasicrystal, the structure of atoms is only quasiperiodic, meaning that the pattern of atoms are set in their pattern, but are not periodic throughout the entire plane. Instead, each individual cell has a unique pattern of cells around it.

In terms of physics, "quasicrystal" refers to structures that display overall order but no periodicity (being present at consistent intervals). Quasicrystals can occur in several dimensions: one dimensionally in a chain, two dimensionally in a lattice or tiling structure, or three dimensionally as a solid.

An interesting characteristic of quasicrystals is their five-fold symmetry. It was unknown until the discovery of quasicrystals that this type of symmetry even existed. Typical crystals are only able to display one-, two-, three-, four- and six-fold symmetries.

**General Science:** Rosie crystallizes a protein, then aims a narrow beam of electromagnetic radiation at 1.54 angstroms at a sample of the crystal. She records the scattered or diffracted beams on a special film or solid state detector. What is the common general name for this procedure?

Answer: X-ray crystallography

| Sunday | Monday | Tuesday | Wednesday | Thursday | Friday | Saturday |
|---|---|---|---|---|---|---|
| | 1 New Year's Day | 2 | 3 | 4 Sir Isaac Newton's Birthday | 5 Registration Deadline for February ACT | 6 Three Kings Day (Dia de los Santos Reyes) |
| 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| 14 | 15 | 16 | 17 | 18 | 19 | 20 Islamic New Year (Depends on the sighting of the moon in N. America) |
| 21 | 22 | 23 | 24 | 25 | 26 | 27 SAT and Subject Tests Date |
| 28 | 29 | 30 | 31 | | | |

December 2006

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February 2007

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| 18 | 19 | 20 | 21 | 22 | 23 | 24 |
| 25 | 26 | 27 | 28 | | | |

# january 2007